

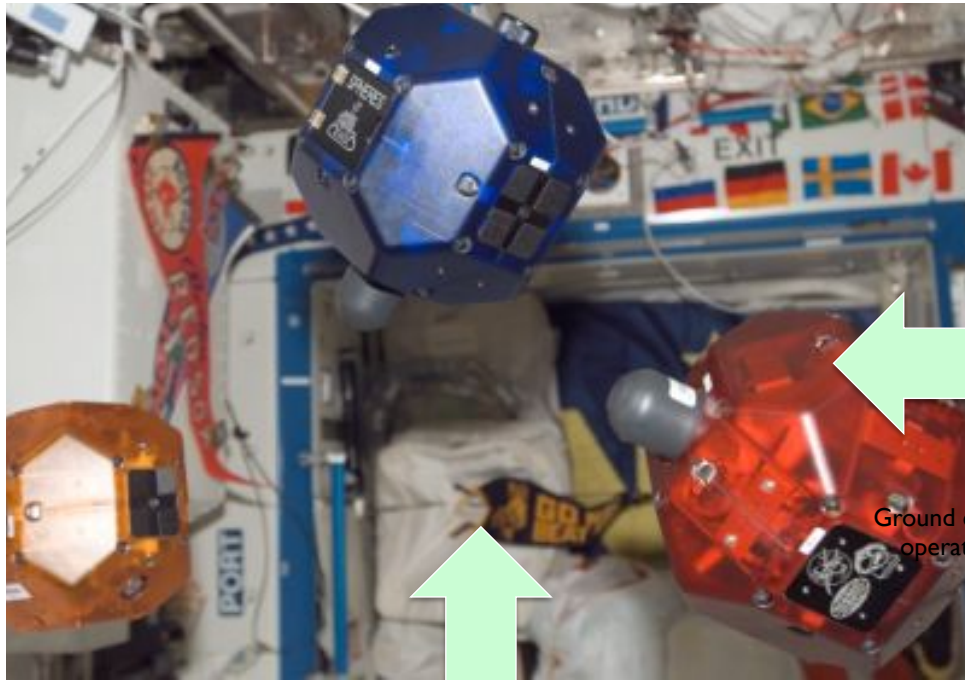
SMART SPHERES

The image shows four small, hexagonal robots, each with a translucent body in a different color: red, orange, blue, and dark blue. They are mounted on a base with blue wheels and various sensors and actuators. The robots are arranged in a row on a dark, reflective surface, and their reflections are clearly visible below them. The background is dark with some faint structural elements.

Mark Micire, PhD
Intelligent Robotics Group / SPHERES National Lab
Carnegie Mellon / NASA Ames Research Center

Human Exploration Telerobotics (HET)

- Demonstrate & assess remote operation of advanced robots to increase productivity, reduce cost, and mitigate risk for future deep-space human exploration missions
- Improve the efficiency and productivity of human explorers
- Increase the return (science, engineering, etc.) of human missions
- Identify requirements, benefits, limitations, costs and risks of integrating advanced telerobotics into future exploration campaigns



Flight Barriers

- Procurement and certificates of conformance
- GSM 850Mhz frequencies not safe for ISS
- Cell phone lithium-polymer batteries are not flight certified
- Alkaline batteries are preferred and shipped on regular 6-month basis
- Glass breakage is a safety critical problem
- Mechanical drawings and assembly procedure
- Windows XP SP3 with new device and no driver support
- No time for software development!



[« Back to device](#)

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Nexus S Teardown



Teardown

Teardowns provide a look inside a device and should not be used as disassembly instructions.



Featured Guide

This guide has been found to be exceptionally cool by the iFixit staff.

★ x 18 💬 x 10

[Tweet](#) 1,230

[+1](#) 16

[Like](#) 96

Nearly one year after the release of the [Nexus One](#), Google, in partnership with Samsung, has released its second official phone the Nexus S. It has some fancy **gimmicks** features that separate it from other Android phones on the market, such as a curved display and the newest 2.3 Gingerbread update.

That's great and everything, but we wanted to see what makes this baby tick. So stay tuned as we dig deep into the Nexus S!

Like the teardown? You can now embed it in your site! Just hit the **embed** link below for the HTML code.

Tools

- Heat gun or hair dryer
- Phillips #00 Screwdriver
- Plastic Opening Tools

View: [Paginated](#) [Full width](#)

Formats: [Slideshow](#) [XML](#) [Embed](#)

[View](#)[Edit](#)[History](#)

Nexus S

Released December 2010, the second Nexus phone from Google.

[3 Step-by-step Guides](#)

[17 Solutions](#)

[Start a New Guide](#)

[Ask a Question](#)

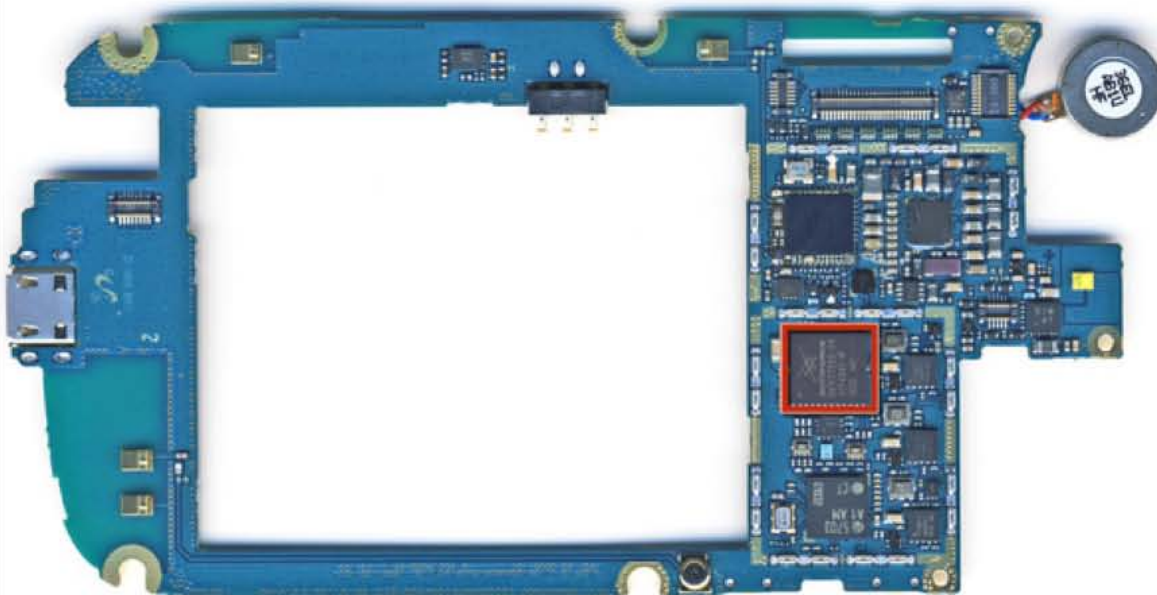
Powered by Dozuki
The easy way to make online manuals.



Step 1 — Nexus S Teardown

[Edit](#) [💬](#)

- The Nexus S is a variation of the Samsung Galaxy S, sporting more or less the same hardware specifications as its brethren.
- Notable changes to the Nexus S include NFC (Near Field Communication) support and a Super AMOLED Contour Display.
- Tech Specs:

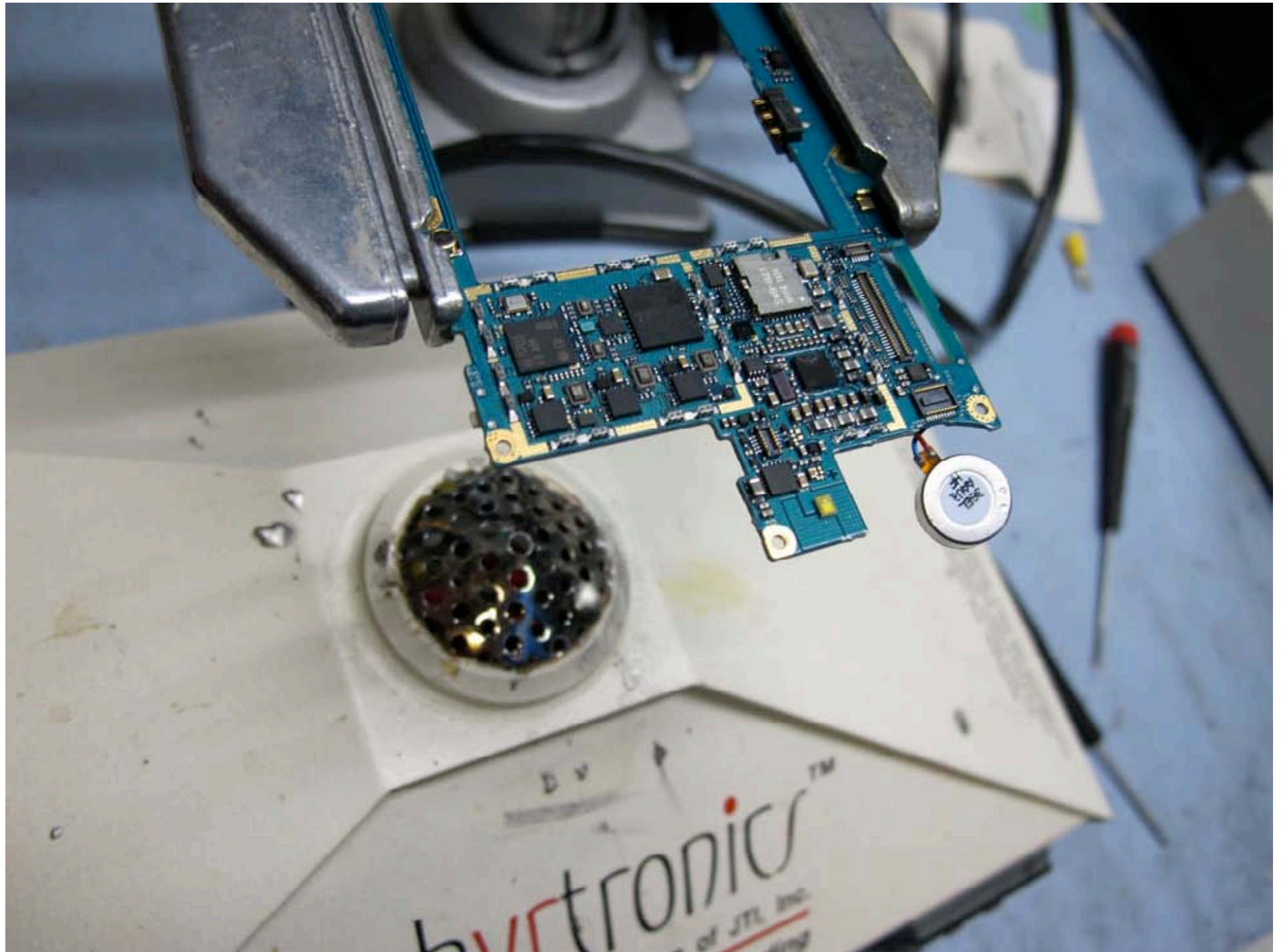


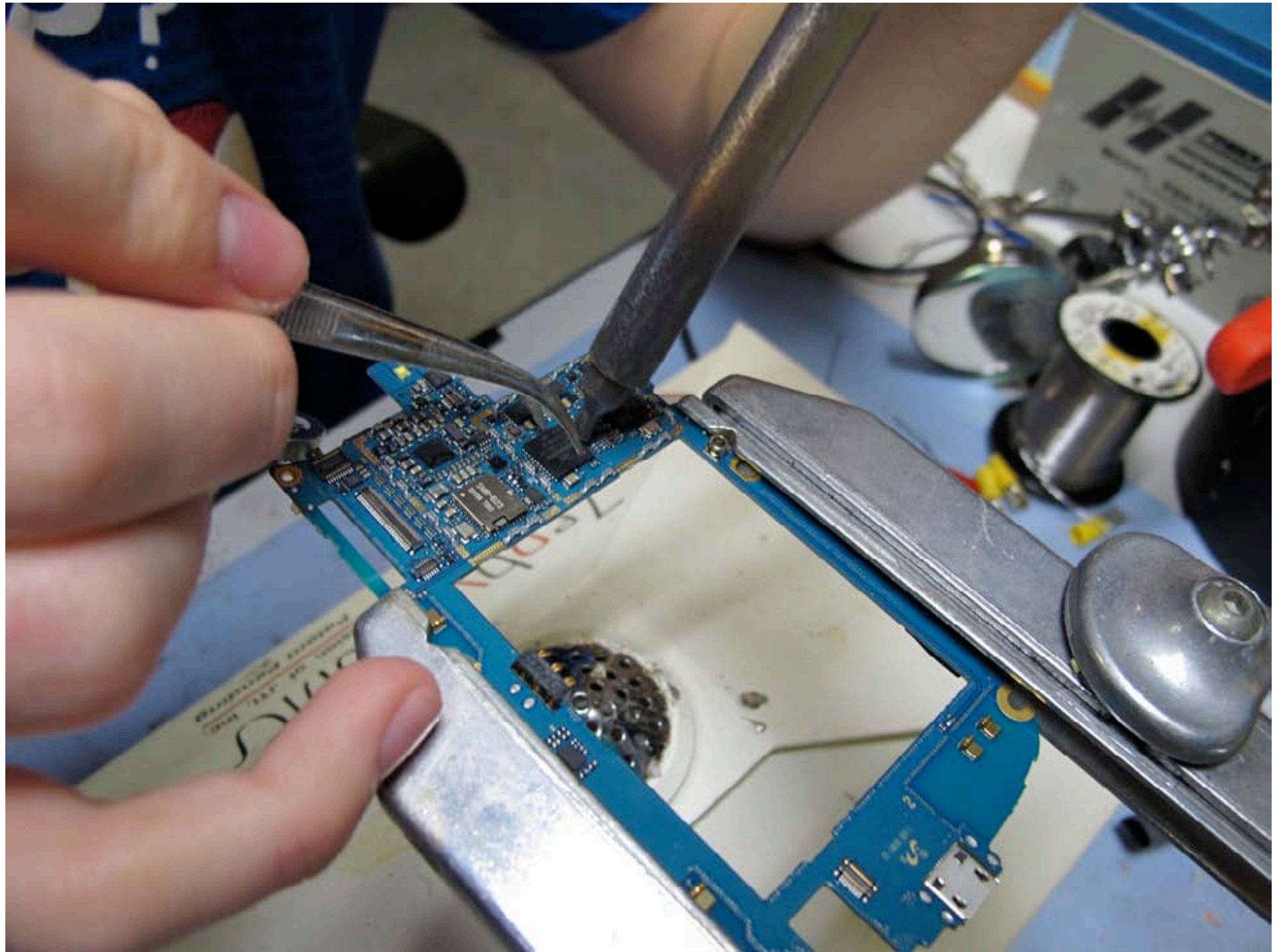
Step 10

Edit 

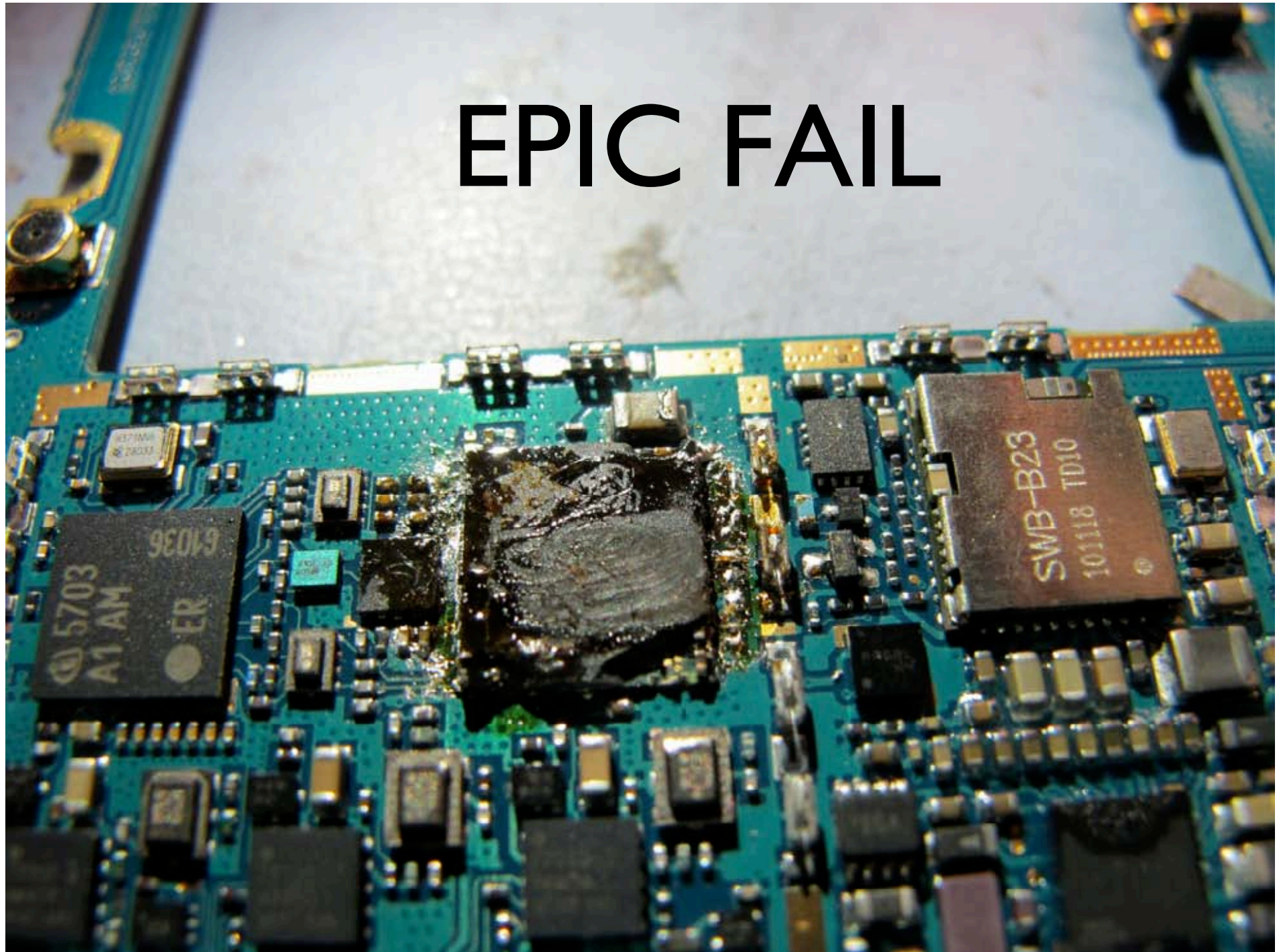
- Big players on the motherboard include:

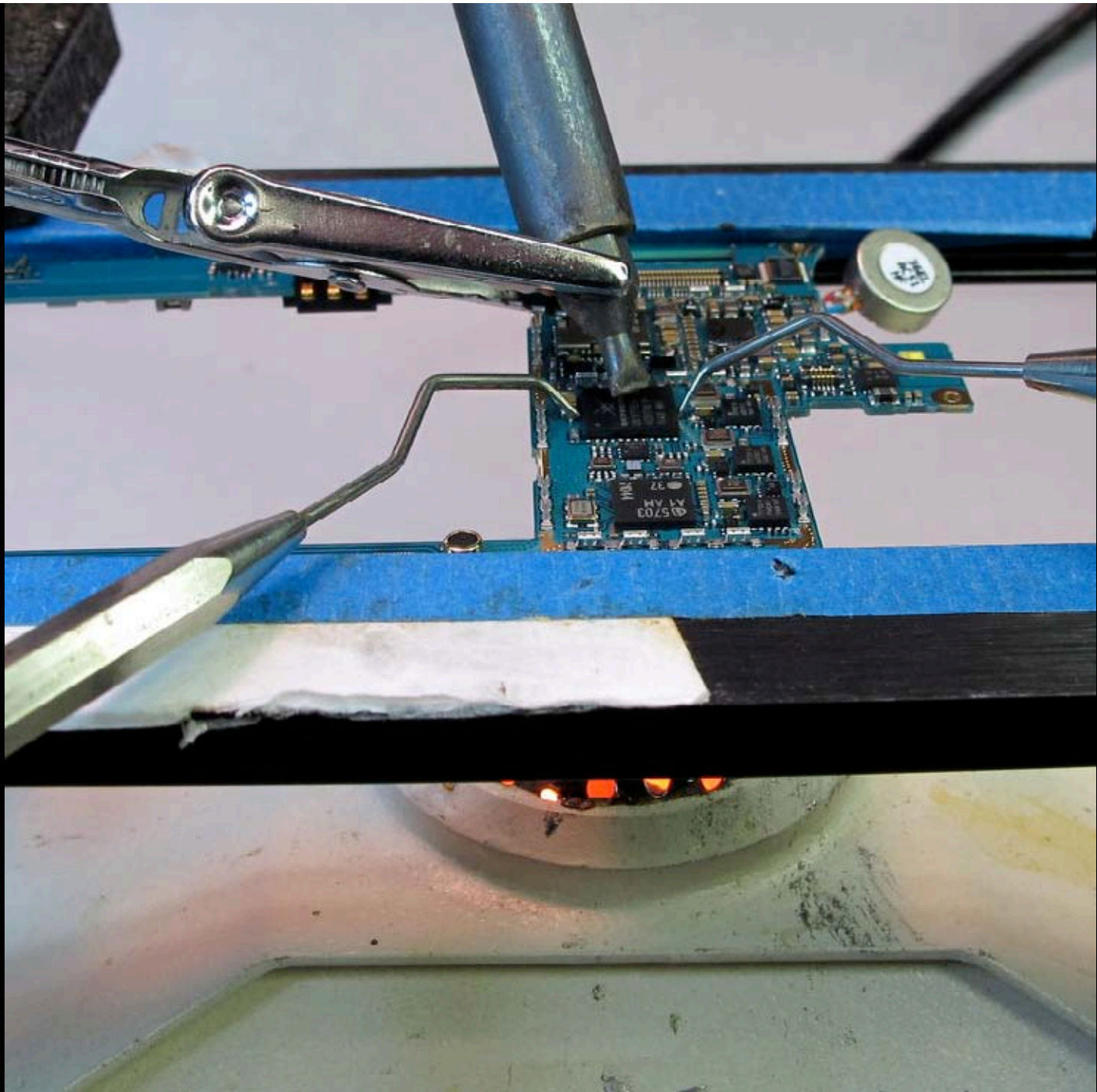
- Skyworks SKY77529 Tx Front-End Module for Dual-Band GSM / GPRS / EDGE
- SanDisk SDIN4C2 16GB MLC NAND flash.
- Samsung KB100D00WM-A453 memory package and S5PC110A01 1GHz Cortex A8 Hummingbird Processor.
- Infineon 8824 XG616 X-Gold baseband processor
- Wolfson Microelectronics WM8994 ultra-low power audio codec.

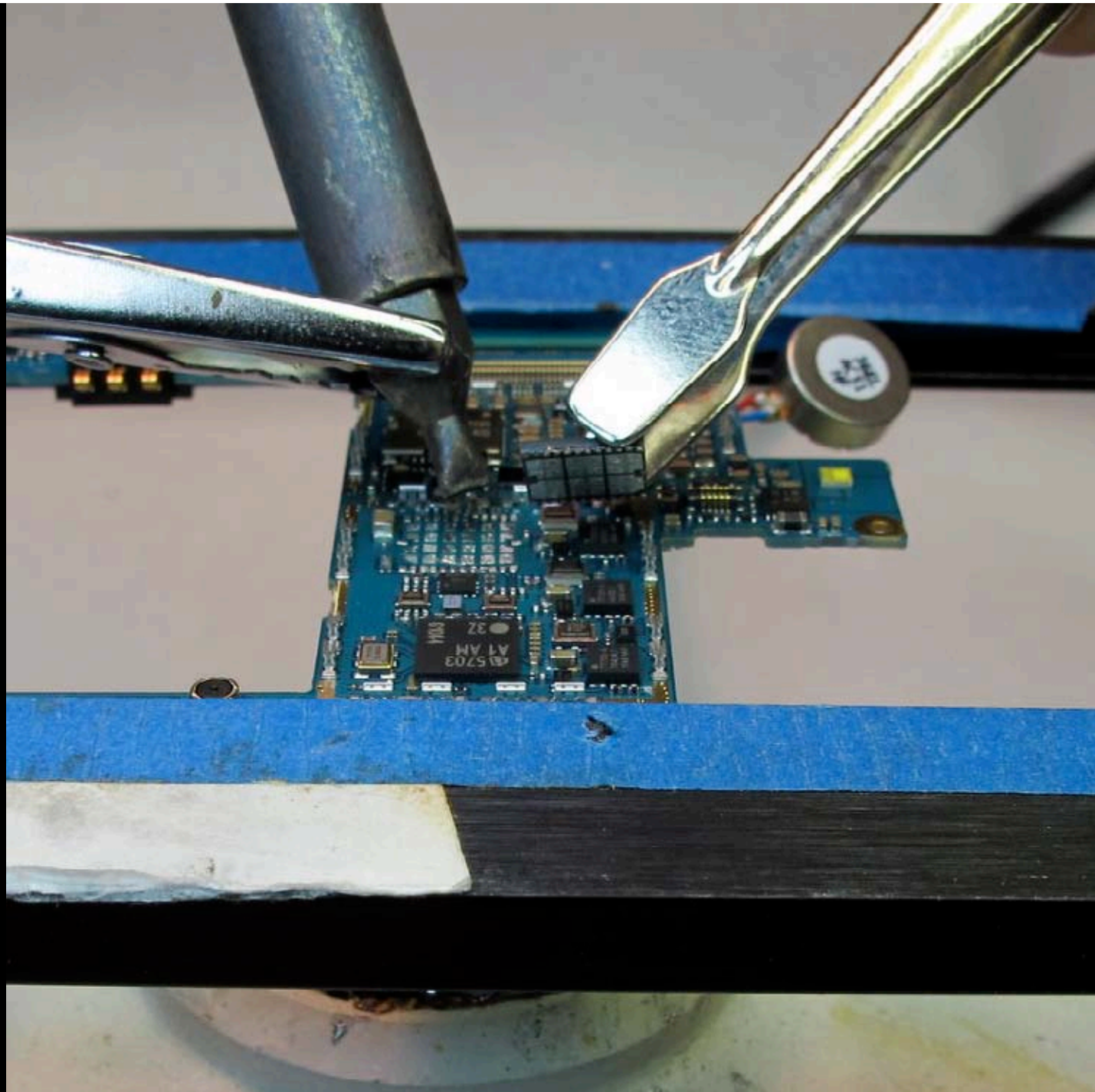




EPIC FAIL









Edmund Scientific Co.
101 E. Gloucester Pk.
Barrington, New Jersey 08007-1200
Phone (609) 573-0200 FAX (609) 573-0000

Phone info

IMEI: 355031040079317

Phone number: unknown

Current network:

Run ping test

Ping IpAddr:

Ping Hostname(www.google.com):

HTTP Client test:

Signal strength: -111 dBm 1 asu

Location: LAC = unknown CID = unknown

Neighboring CID: unknown

Roaming: Not roaming

GSM service: Radio off

GPRS service: Disconnected

Network type: unknown

Message waiting: false

Call redirect: false

Call status: Idle

Radio resets: 0

Data attempts: 0

Data successes: 0

GSM disconnects: =====DATA=====
State: DcInactiveState







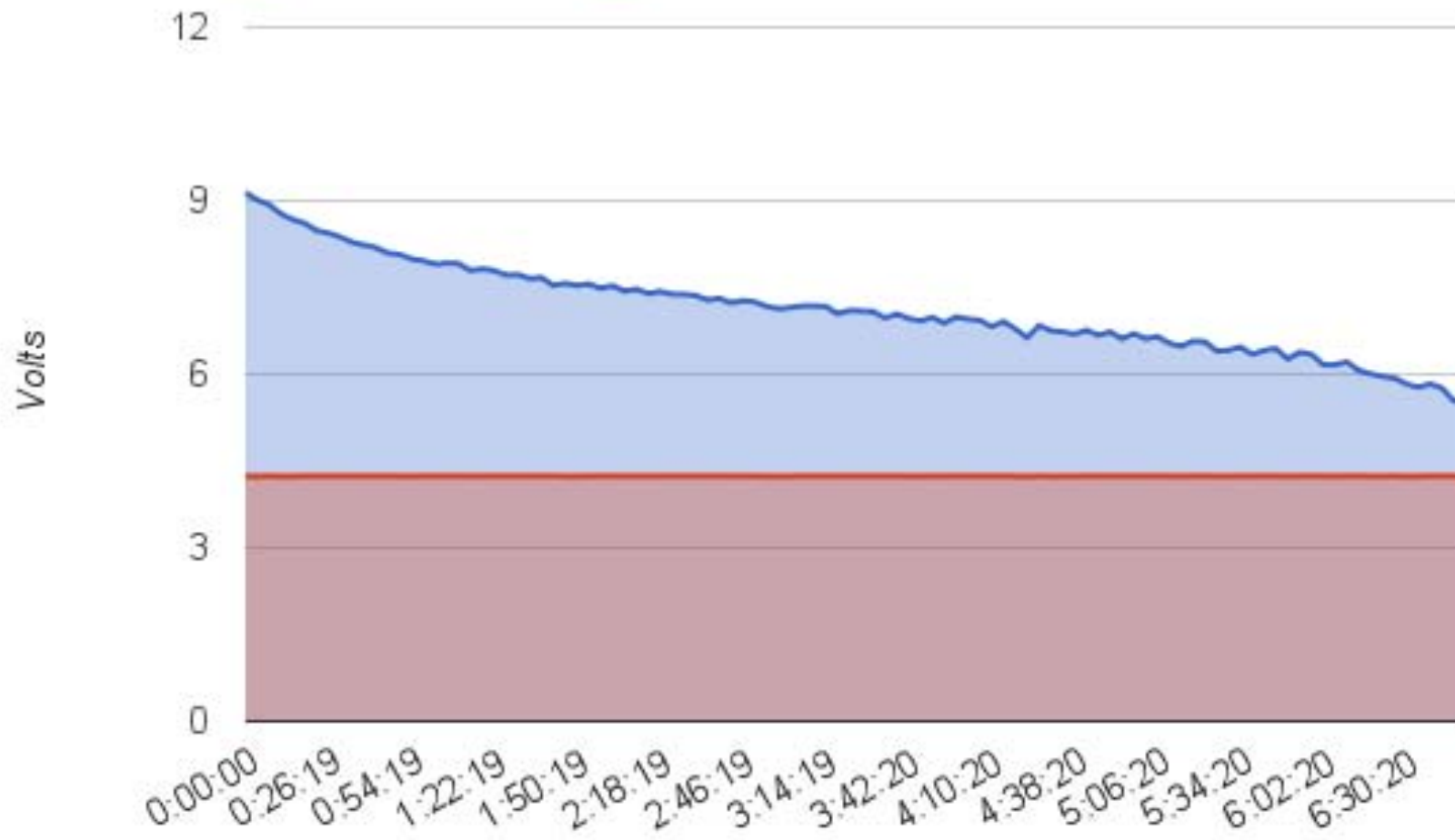


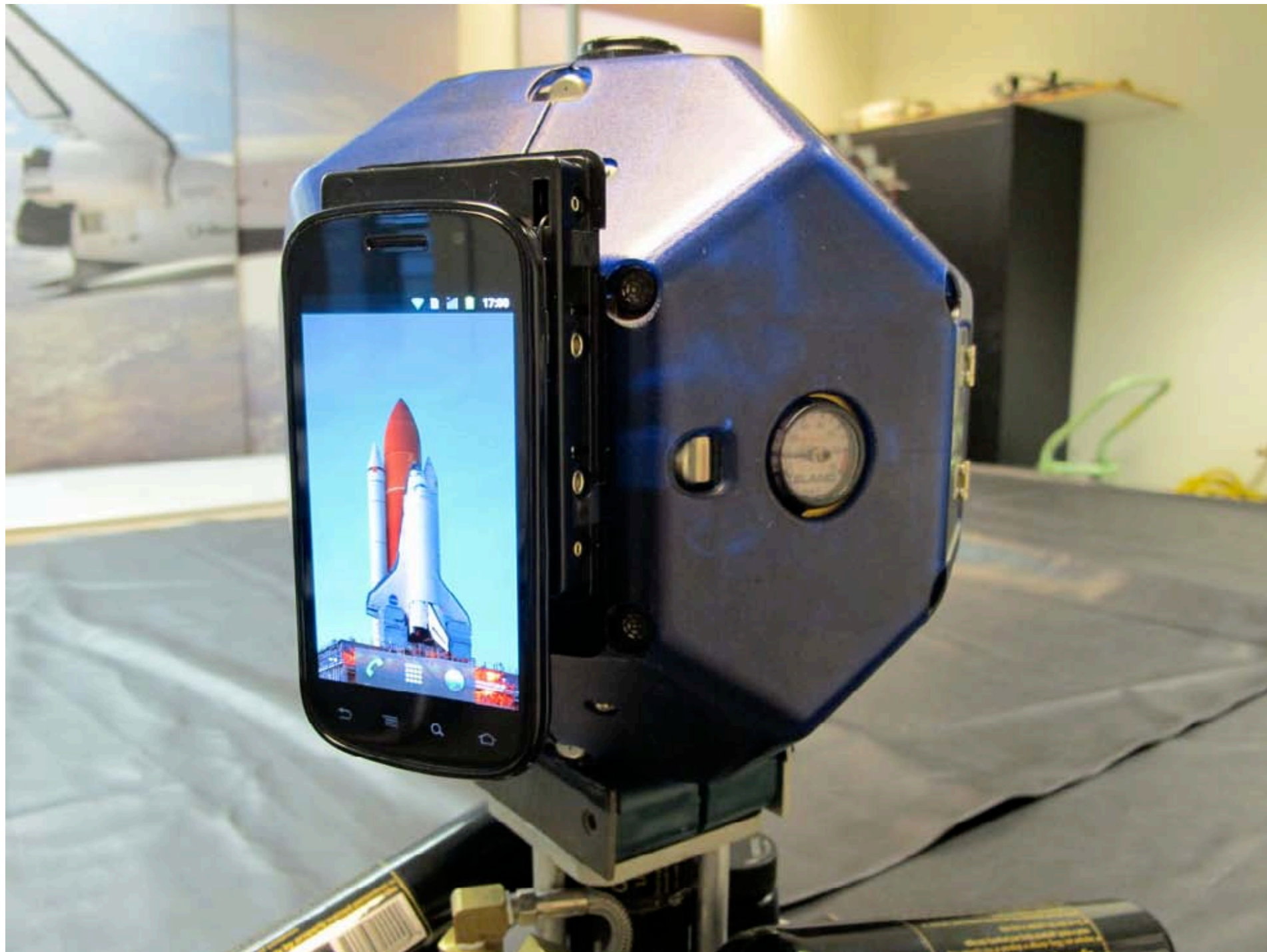




Alkaline Battery Discharge for Nexus-S

■ Battery Voltage ■ DC/DC Out Voltage

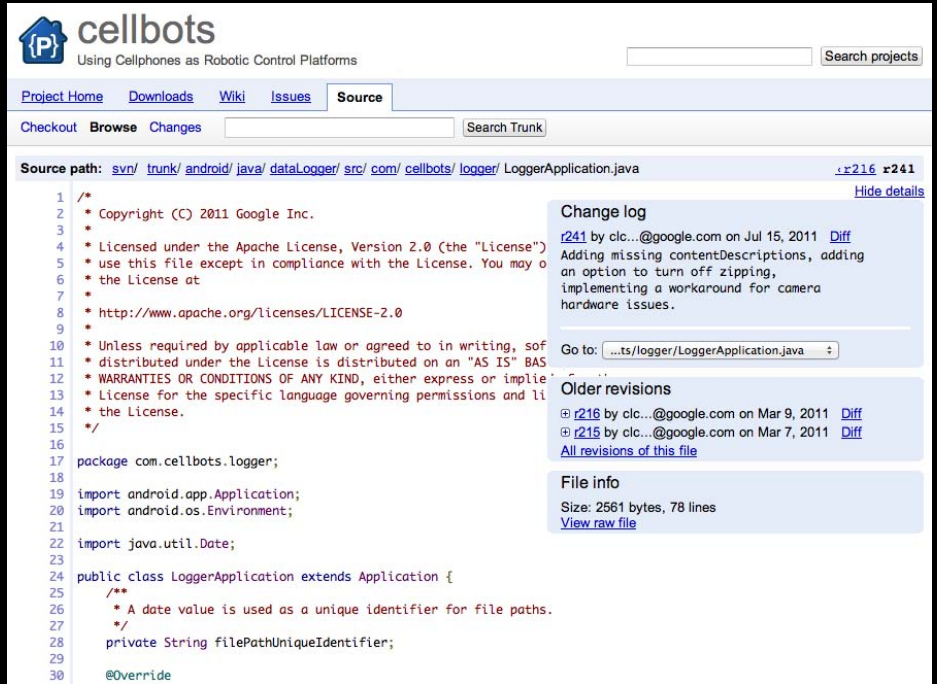
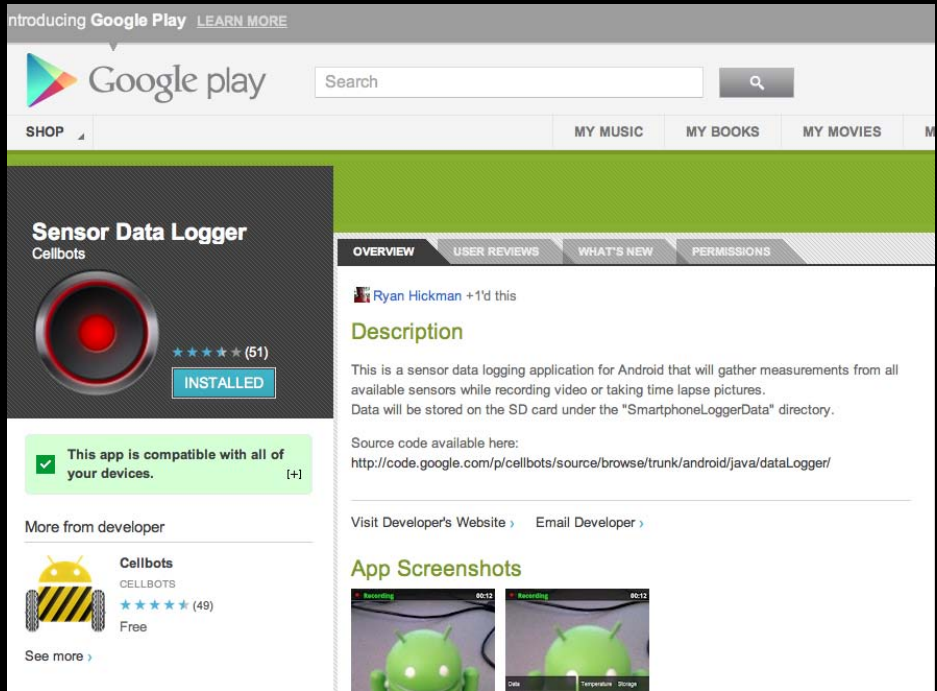
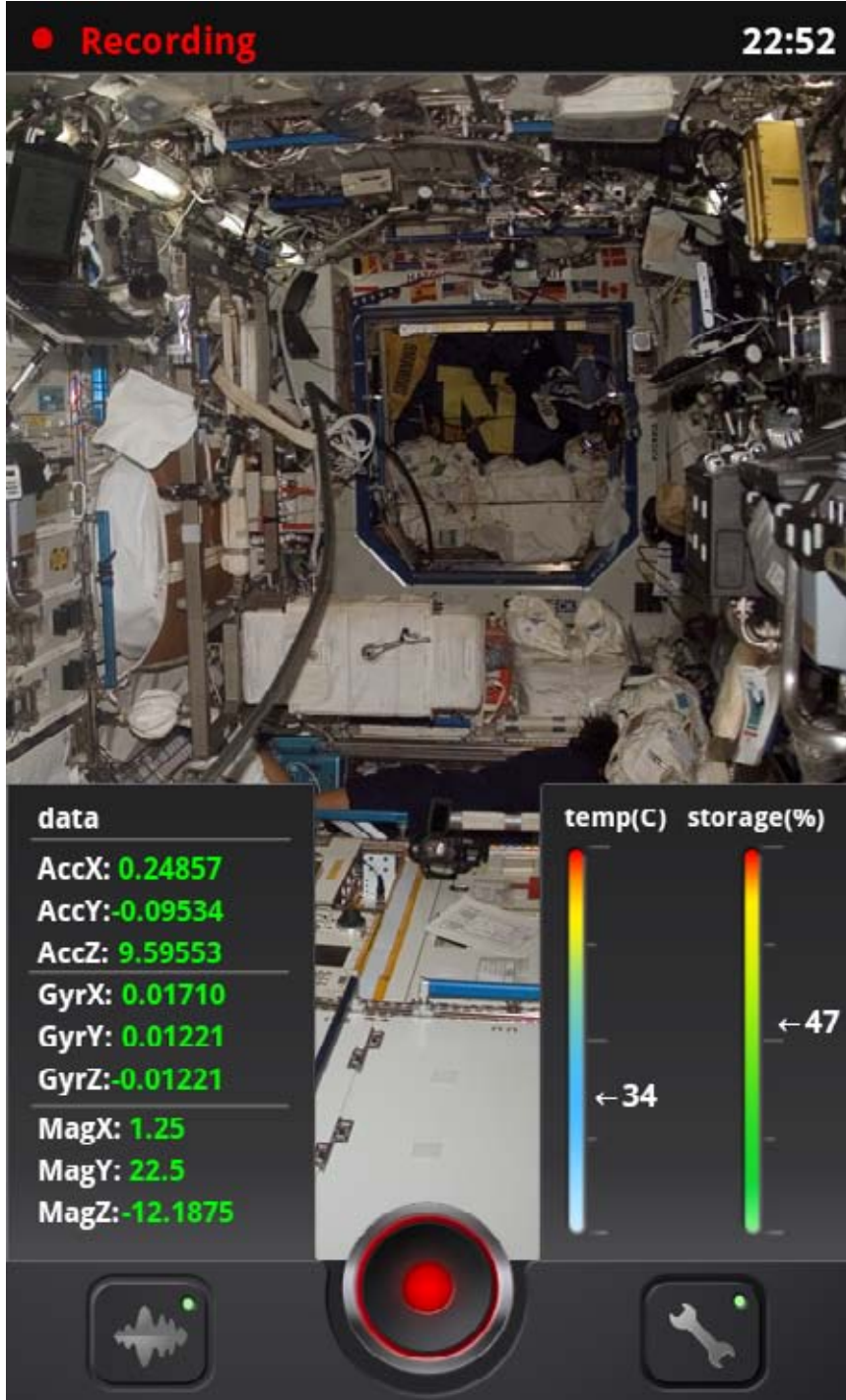












Flight Barriers

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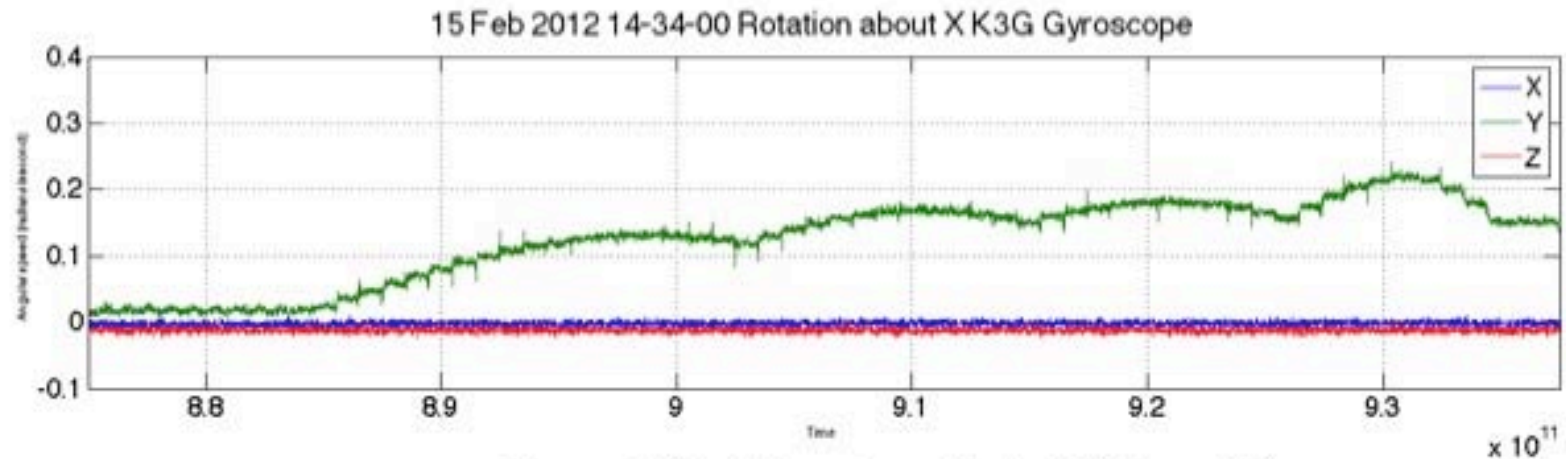




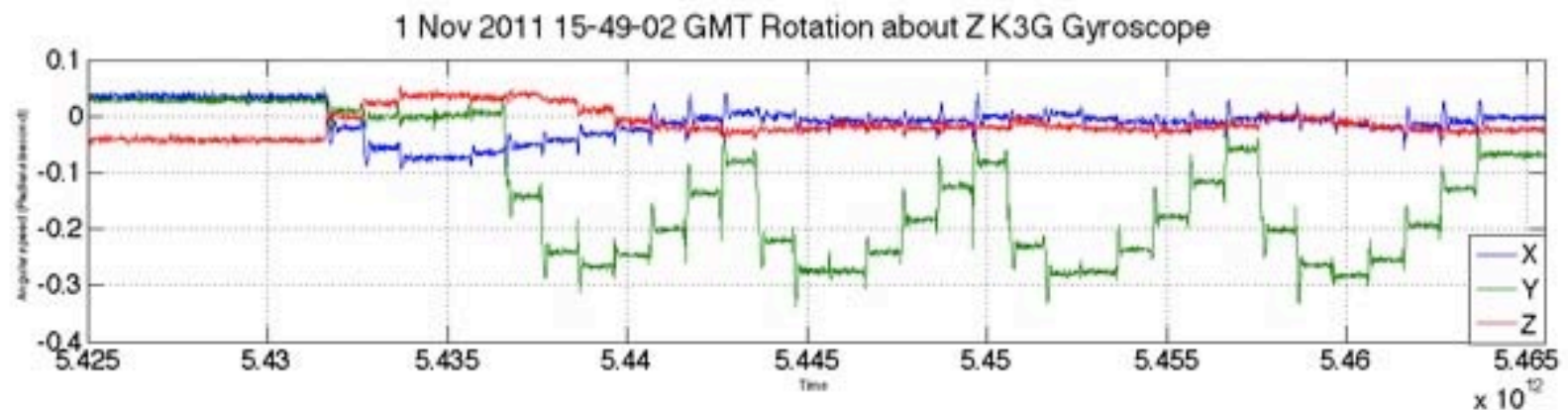




Gyroscope - Rotation about Y

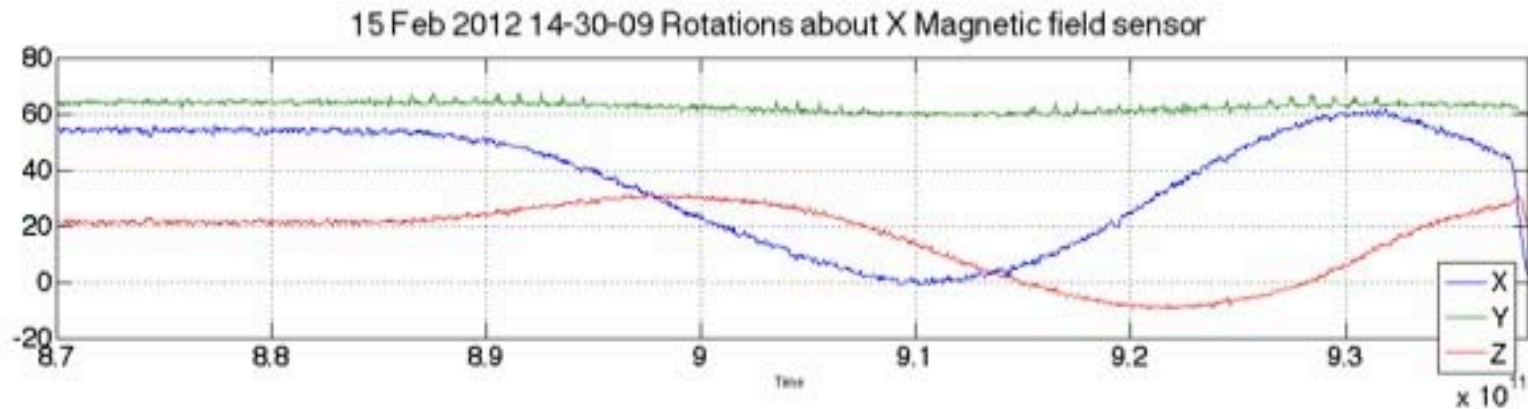


Ground (Rotation about Lab X (Phone Y))

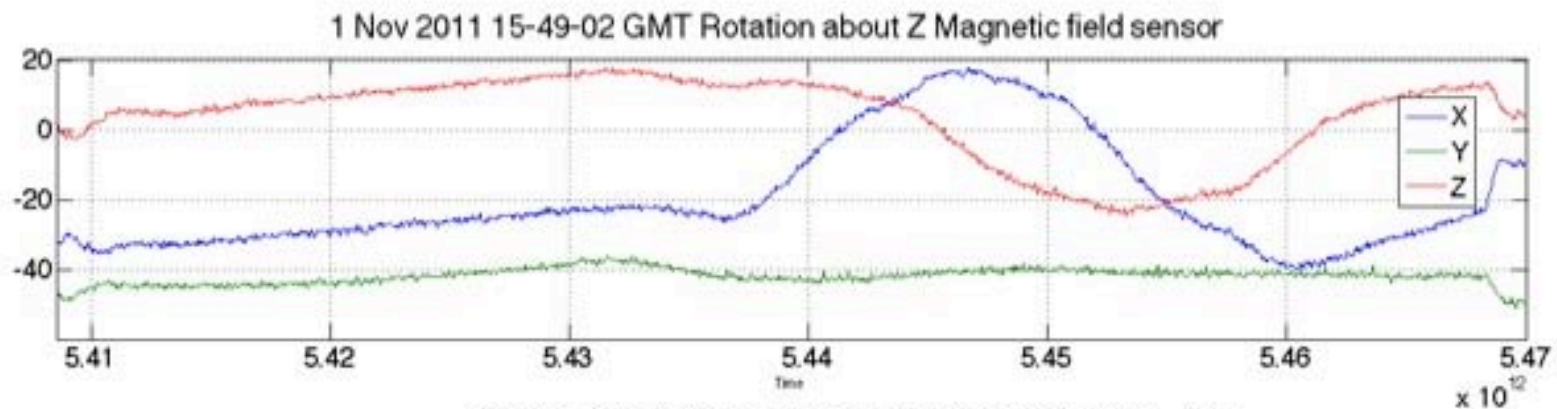


Orbit (Rotation about JEM Z (Phone -Y))

Magnetometer - Rotation about Y

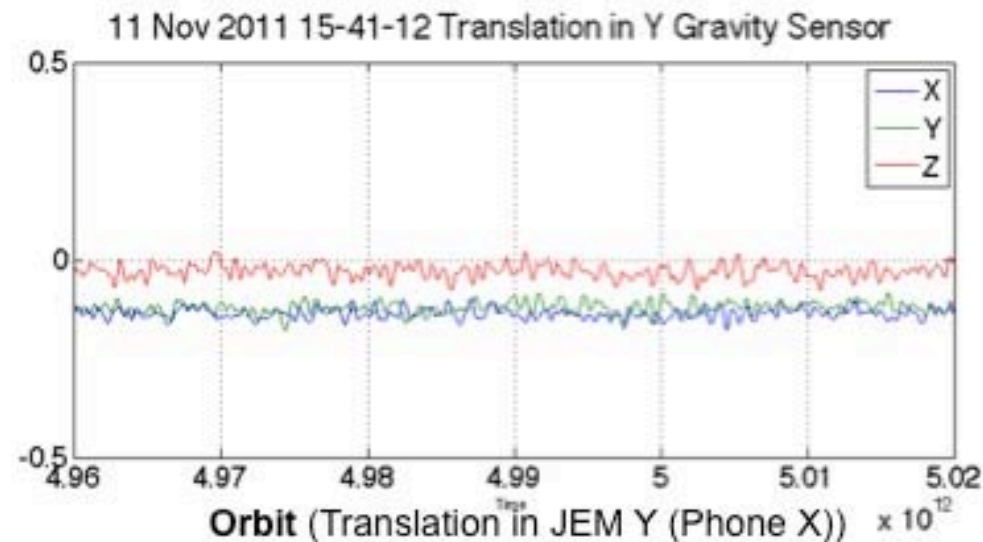
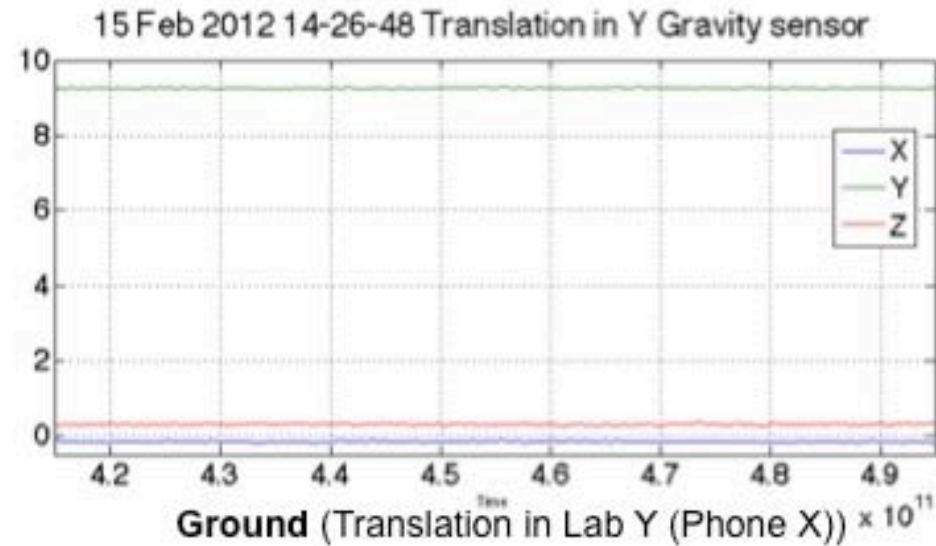


Ground (Rotation about Lab X (Phone Y))

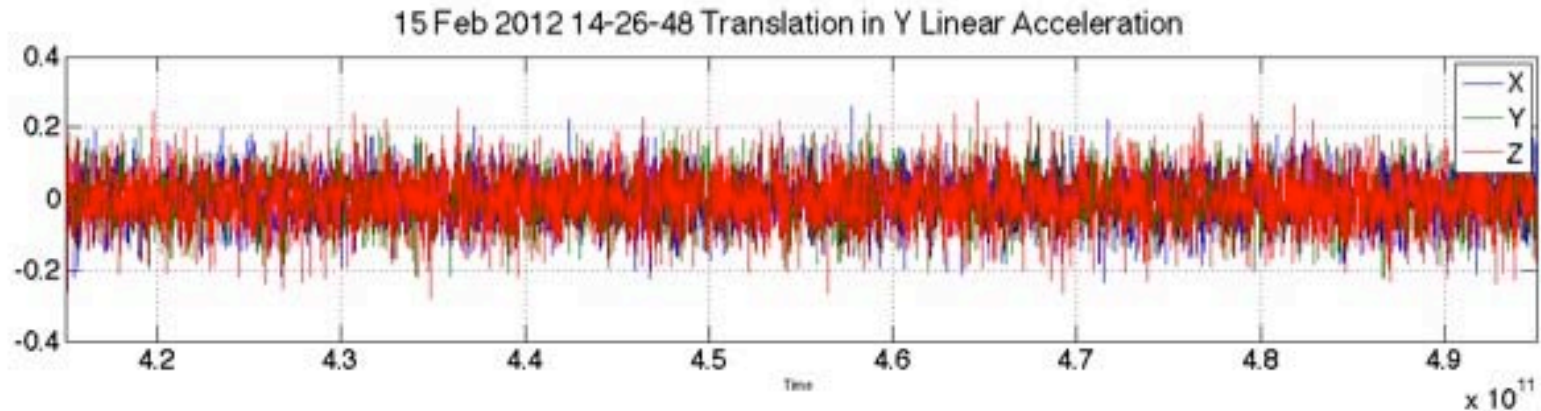


Orbit (Rotation about JEM Z (Phone -Y))

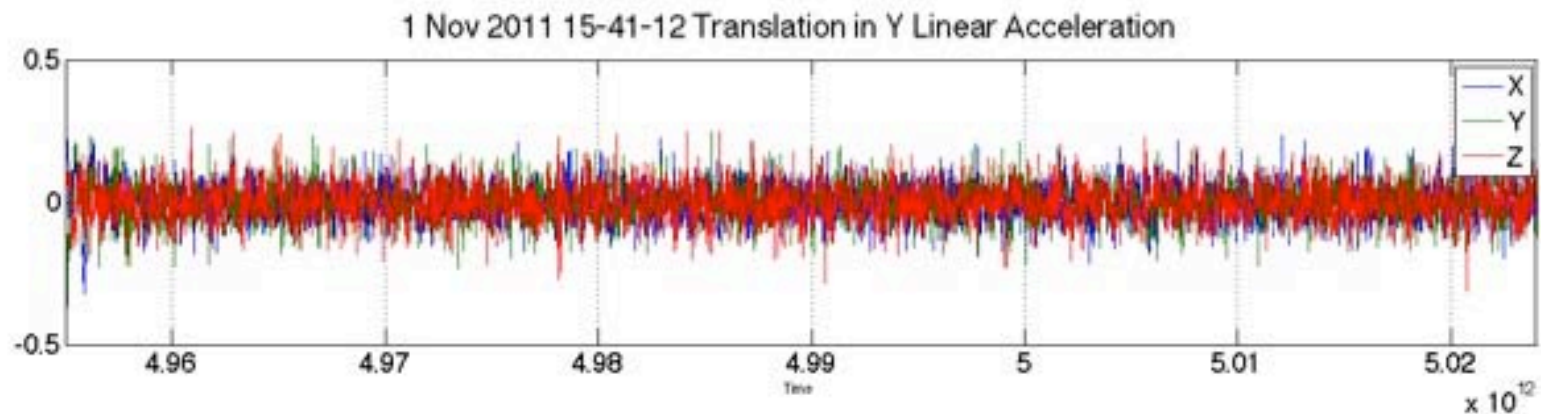
Gravity Sensor - X Translation



Linear Accelerometer - X Translation

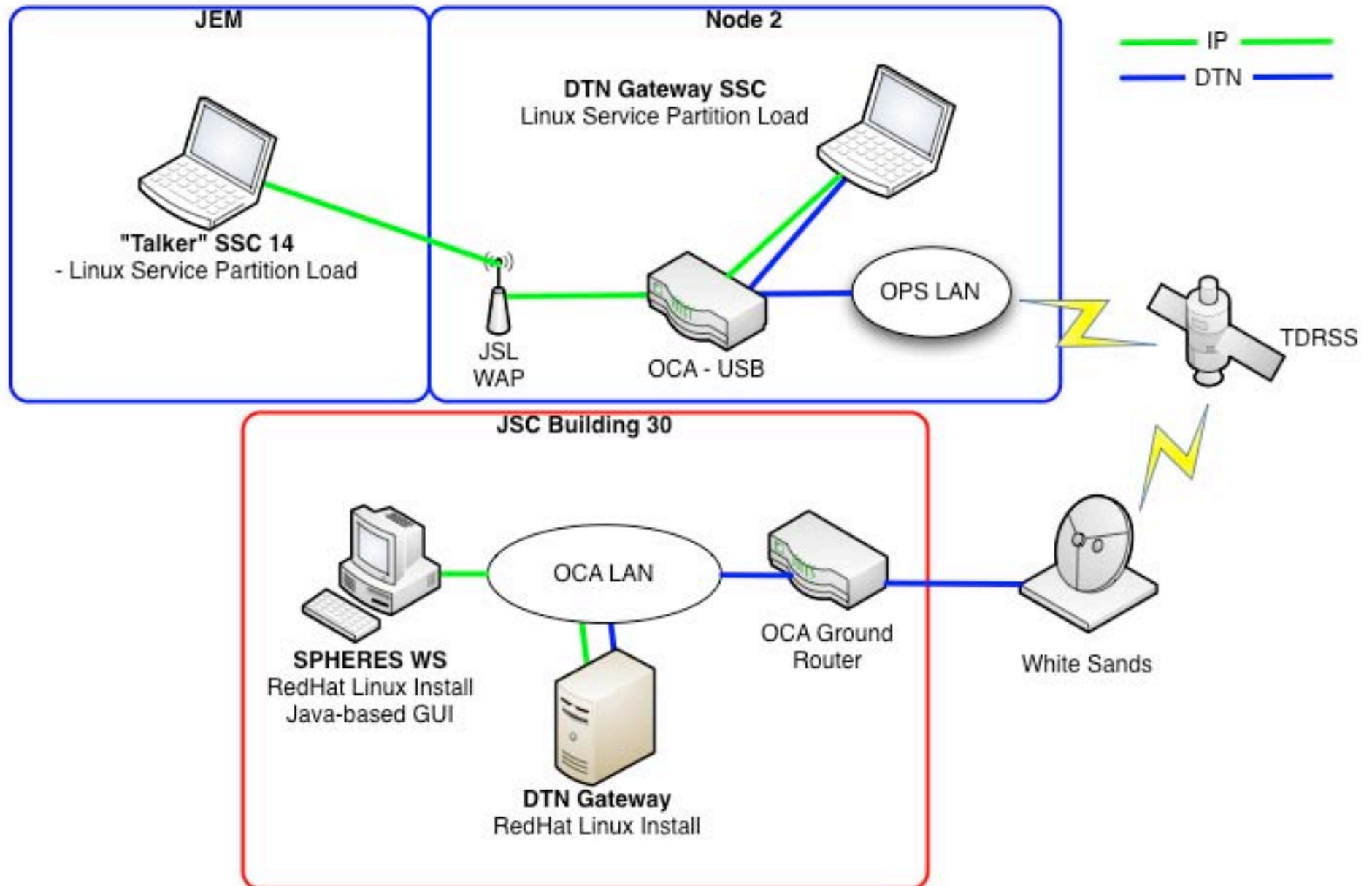


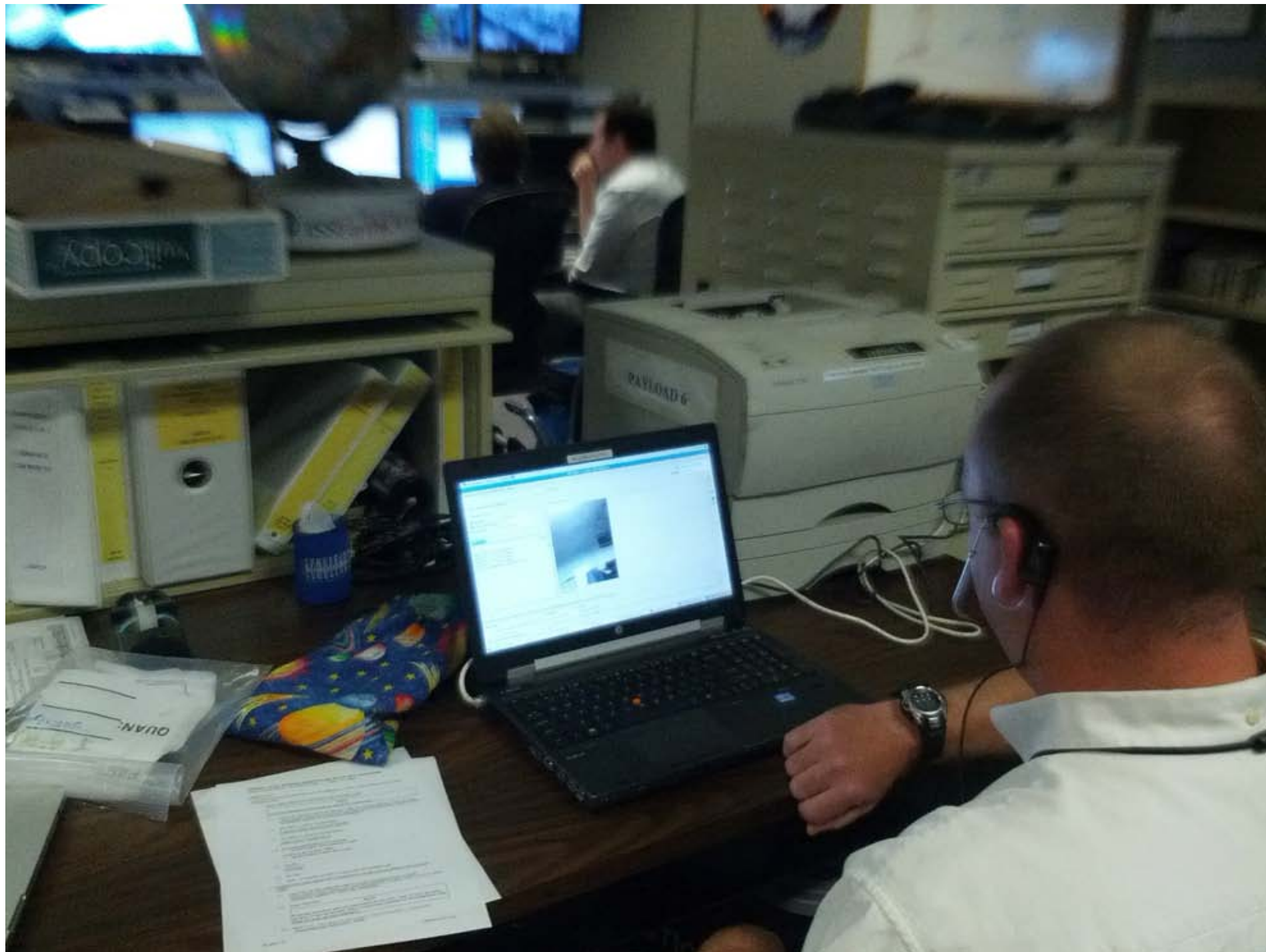
Ground (Translation in Lab Y (Phone X))



Orbit (Translation in JEM Y (Phone X))

Dry-Run Network Configuration

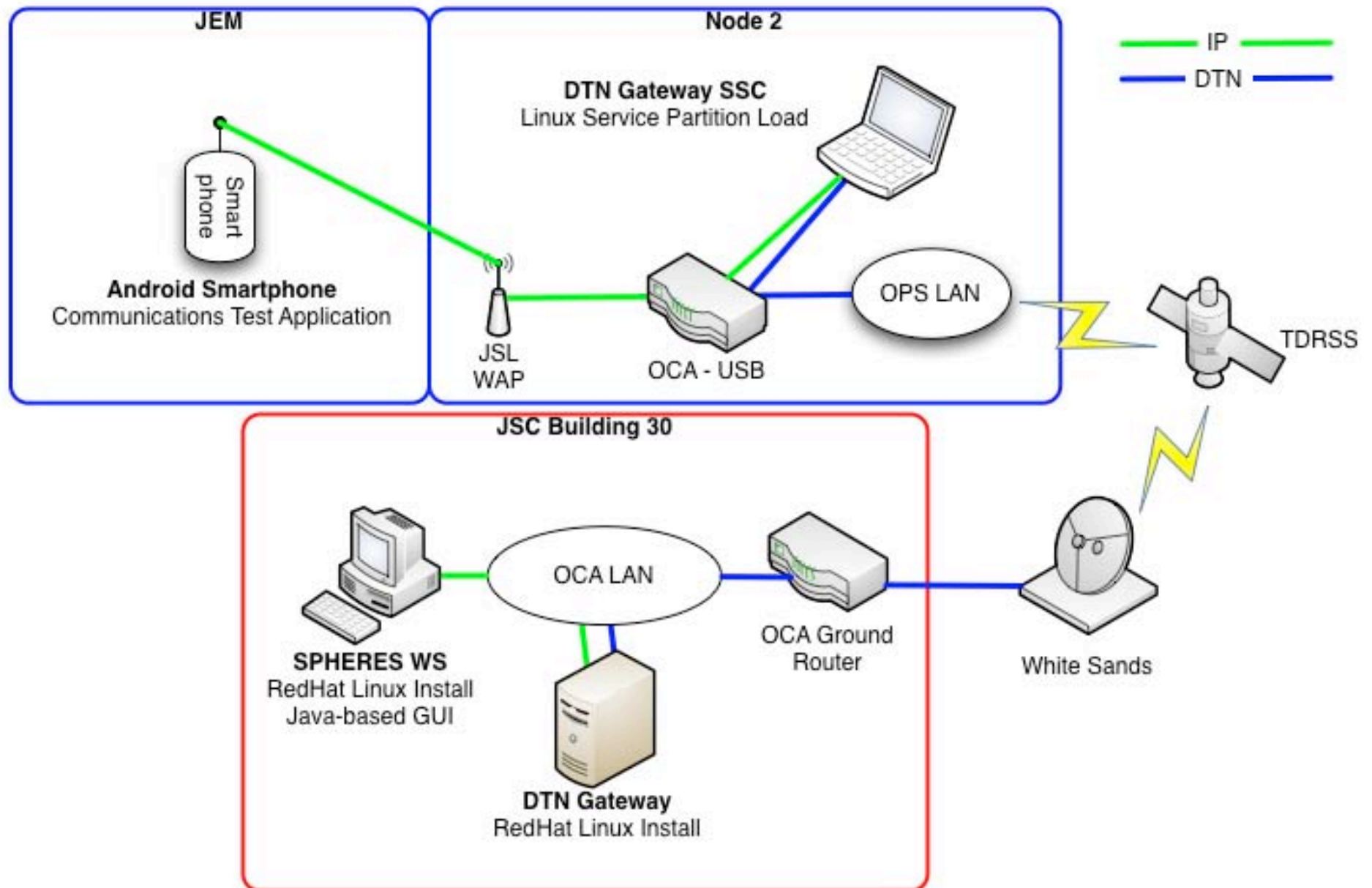


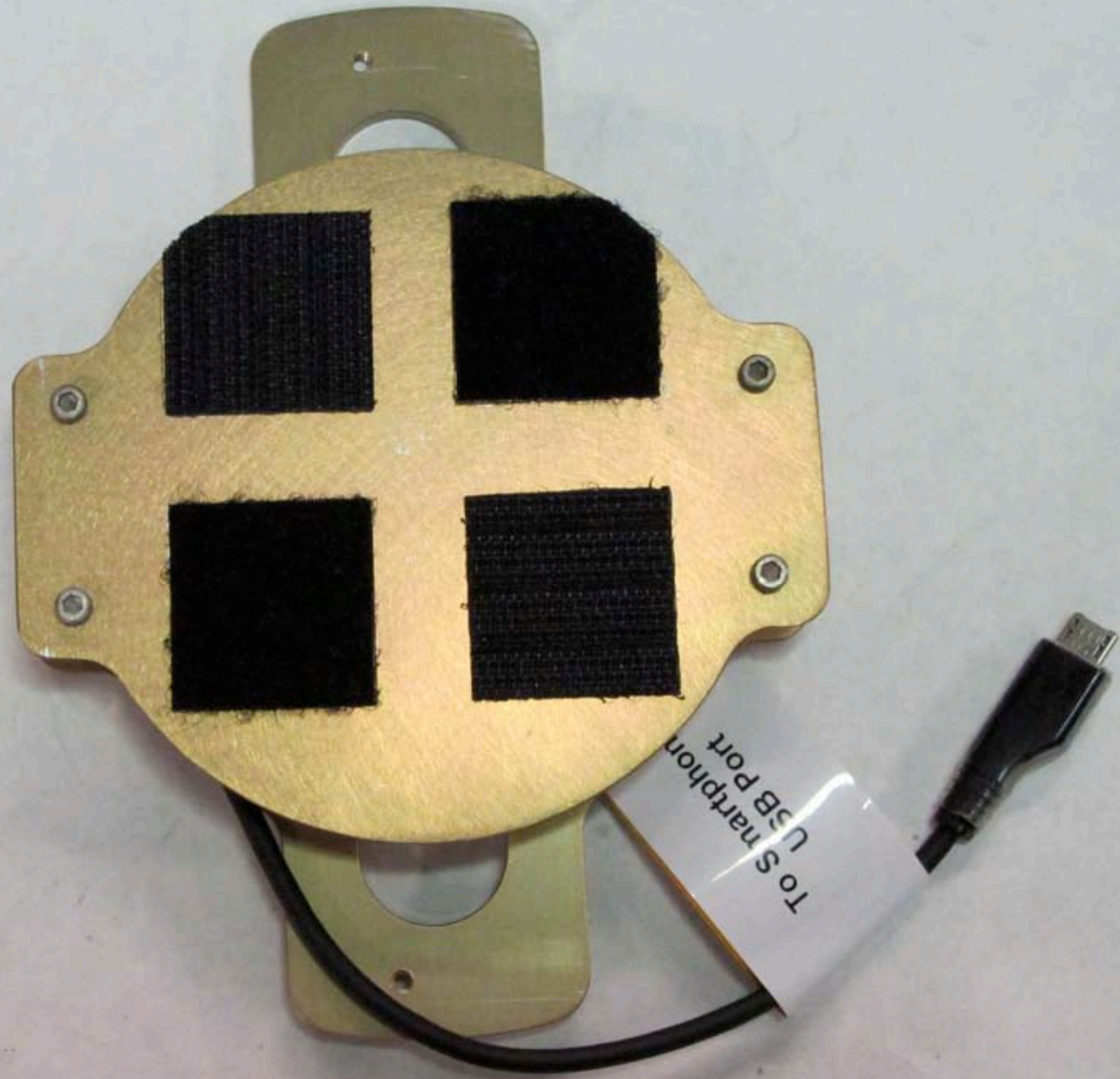






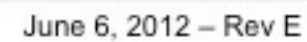
Comms Test Network Configuration







LOS <2 min:
plan
continues



SPHERES Smartphone Workbench

File Help

Ack 0

GPS 11Jun12 18:32:02

SPHERES Connected

Tip Verify SPHERES is following plan. Press pause to pause pl

Verify Connection

Preview Plans

Run Plans

Manual Control

Stop SPHERES

Setup

Plan Preview Control

1. Select a plan to preview.

valid1.splan

2. Control plan preview.



Plan Previewing valid1

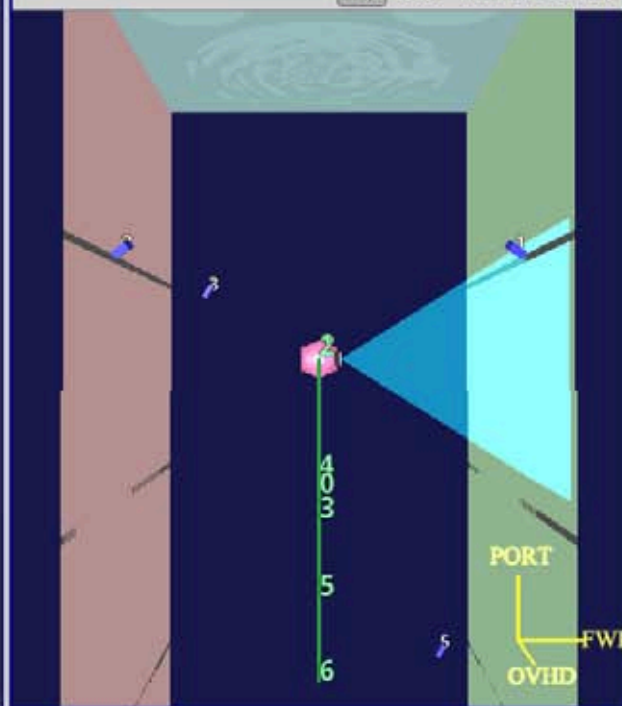
Status Running

EET 00:02:05

EET	Command
00:00:00	Station 0
00:00:00	Segment 0-1
00:00:17	Station 1
00:00:17	Orient
00:00:27	Flashlight on
00:00:27	Record start
> 00:00:27	Segment 1-2
00:00:51	Station 2
00:00:51	Pause
00:00:51	Segment 2-3

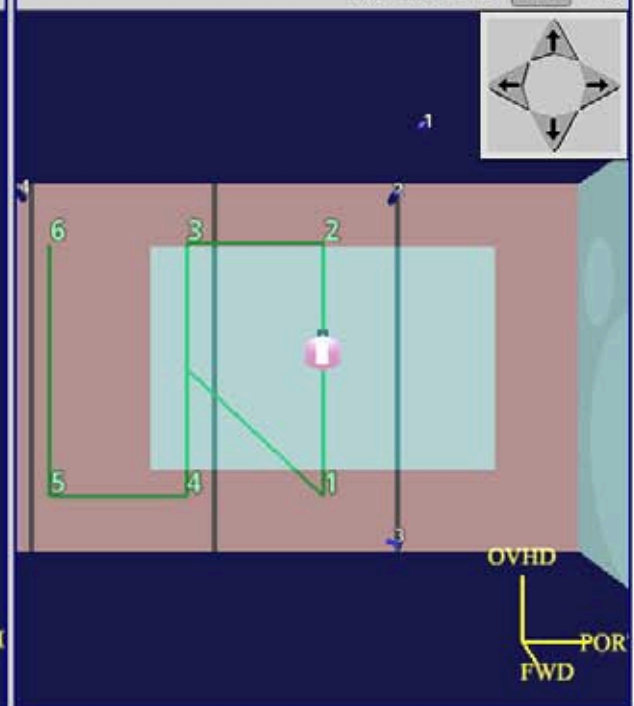
3D Preview

Top Side End Free Flip



3D Preview

Top Side End Free Flip



Log

Help

Exit

Plan paused

SPHERES Smartphone Workbench

File Help

Ack 0

GPS 11Jun12 18:32:17
SPHERES Connected

Tip Connect to SPHERES and pause the plan to use manual control

Verify Connection Preview Plans **Run Plans** Manual Control

Stop SPHERES Setup

Run Plan Control

1. Upload plan to SPHERES.
valid1.splan Upload

2. Control plan on SPHERES.

Plan Running valid1
Status Running
Time 00:00:07

Time	Command
✓	Station 0
✓ 00:00:03	Segment 0-1
✓	Station 1
✓ 00:00:03	Orient
	Flashlight on
	Record start
	Segment 1-2
	Station 2
	Pause
	Segment 2-3

Image Sensor

Mark Damage


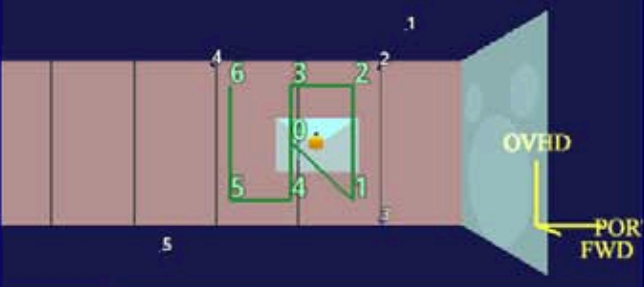


Image #1

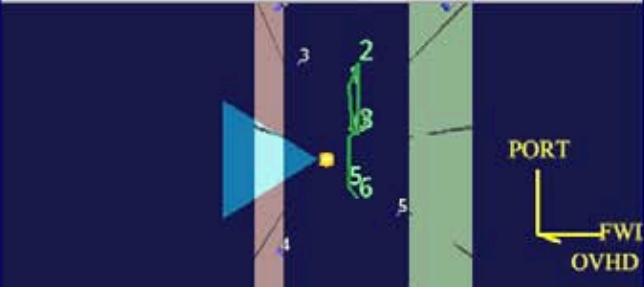
3D Live

Top Side End Free Flip



3D Live

Top Side End Free Flip



Log Help Exit

